

REMARKS/ARGUMENTS

Claims 1-15 were previously pending in the application. Claims 1-15 are canceled, and new claims 16-44 are added herein. Assuming the entry of this amendment, claims 16-44 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

In paragraph 1 of the office action, the Examiner stated that the oath or declaration is defective and required a new oath or declaration on the basis that non-initialed and/or non-dated changes were made to the oath or declaration, citing 37 C.F.R. 1.52(c) as authority. In response, the Applicant submits that all 37 C.F.R. 1.52(c)(1) requires is that changes be made before the signing of the oath or declaration. Initialing and dating changes is merely desired, as indicated by the use of "should" in referring to them.

In paragraph 2, the Examiner objected to the Abstract. In response, the Applicant submits herewith a Substitute Abstract that recites "including" instead of "comprising."

In paragraph 3, the Examiner objected to the disclosure. In response, the Applicant has amended the specification as suggested by the Examiner to remove the foreign priority clause on page 1, lines 3-4.

In paragraph 4, the Examiner again objected to the disclosure. Regarding the terms "synchronisation" and "behaviour," the Applicant has amended the specification as suggested by the Examiner. Regarding the terms "frames" and "data frames," the Examiner has not suggested why these usages are "informalities" that require "correction," or why "smaller packets" or "mini-packets" are appropriate terms for applicant's invention that pass some unstated test for "formality." Absent some showing that the Applicant's terminology is contrary to conventional usage and is not defined in the application, the Applicant is entitled to be his own lexicographer.

In paragraph 5, the Examiner objected to the drawings "because they fail to show wording (labeling) describing the components in each figures as set forth in the specification," citing MPEP 608.02(d). First of all, each element of each figure that is referred to in the text has a label that is also cited in the text. While it is true that the figures do not show "wording," the Applicant respectfully submits that failure to show "wording" is not a proper grounds upon which to reject drawings in a patent application. The Applicant has reviewed the cited section of the MPEP and has not found anything that supports the Examiner's objection.

In paragraph 6, the Examiner objected to claims 1, 3-5, 9, 11, and 13. In response, the Applicant refers the Examiner to the response provided previously for paragraph 4 regarding the terms "frames" and "data frames."

In paragraph 8, the Examiner rejected claims 1-3, 11, and 13 under 35 U.S.C. 103(a) as being unpatentable over Mahany in view of Warren. In paragraph 12, the Examiner rejected claims 4-9, 12, and 14-15 under 35 U.S.C. 103(a) as being unpatentable over Mahany-Warren, and further in view of the admitted prior art. In paragraph 19, the Examiner rejected claim 10 under 35 U.S.C. 103(a) as being unpatentable over Mahany-Warren-Ito-admitted prior art, and further in view of Andren. Since claims 1-15 have been canceled, the Applicant submits that the prior-art claim rejections are moot.

New Claims 16 and 27

New claim 16 is directed to an automated method for communicating packets of data with predetermined packet sizes over a communication channel from a transmitter to a receiver. According to this automated method, initial interference in the communication channel is characterized, a first maximum frame transmission time is selected based on the characterized initial interference, and a first data rate and a first frame size are selected for a first packet based on the first maximum frame transmission time. The first packet is fragmented into one or more frames based on the first frame size, and the one or more frames of the first packet are transmitted at the first data rate, such that transmission duration of each frame of the first packet is less than the first maximum frame transmission time.

Furthermore, subsequent interference in the communication channel is characterized, a second maximum frame transmission time is selected based on the characterized subsequent interference, wherein the second maximum frame transmission time is different from the first maximum frame transmission time, and a second data rate and a second frame size are selected for a second packet based on the second maximum frame transmission time. The second packet is fragmented into one or more frames based on the second frame size, and the one or more frames of the second packet are transmitted at the second data rate, such that transmission duration of each frame of the second packet is less than the second maximum frame transmission time.

Mahany teaches, in column 25, lines 24-33, that the maximum transmission duration "may be further reduced to compensate for link bit error rate characteristics or expected duration or frequency of interference bursts." (emphasis added) Significantly, however, there is no teaching or even suggestion in Mahany that this reduction of the maximum transmission duration is implemented using an automated method.

In fact, because Mahany refers to "expected" duration or frequency of interference bursts without mentioning or even suggesting the use of "measured" duration or frequency of interference bursts, the reduction taught by Mahany would, by implication, be limited to a "manual" reduction of the maximum transmission duration at the time that the communication system is initially configured for operation in a particular environment.

In other words, according to the teachings in Mahany, in deciding what value to use for the maximum transmission duration, a person responsible for configuring Mahany's communication system would take into account the expected duration of interference bursts or the expected frequency of interference bursts in the system's particular environment. If the environment were expected to have such interference bursts, then the person would select a value for the maximum transmission duration that was smaller than the value for the maximum transmission duration that would otherwise be used in an environment that did not have such interference bursts, i.e., "the time that the device moving at a maximum expected velocity can traverse 1/4 wavelength of the maximum carrier frequency." See column 25, lines 26-28.

The invention of claim 16, however, is directed to an automated method in which the interference in the communication channel is characterized (as opposed to simply assuming that the interference will be of some expected nature). Moreover, the maximum transmission time is automatically changed based on a subsequent (automatic) characterization of the interference. Again, there is no suggestion in Mahany that the interference is ever characterized, that a maximum transmission time is selected based on that characterization, that the interference is subsequently re-characterized, and that the maximum transmission time is changed based on that re-characterization.

For all these reasons, the Applicant submits that new claim 16 is allowable over Mahany and the cited references. For similar reasons, the Applicant submits that new claim 27 is allowable over all the cited references. Since claims 17-26 and 28-37 depend variously from claims 16 and 27, it is further submitted that those claims are also allowable over all the cited references.

New Claims 18 and 29

According to new claims 17 and 28, at least one of (i) the second data rate is different from the first data rate and (ii) the second frame size is different from the first frame size. According to new claims 18 and 29, which depend from claims 17 and 28, respectively, the second data rate is the same as the first data rate. Thus, in new claims 18 and 29, the first and second frame sizes are the same, while the first and second data rates are different. (See page 9, lines 12-29, of the specification for support for these and most of the other new claims.)

Mahany teaches, in column 22, lines 40-65, a standard (i.e., low) data rate of 250 KBPS and a high data rate of 1 Mbit/sec, where "a fragment at the low rate conveys approximately 1/4 the payload of a fragment for the case where the data rate is four time greater." Thus, in Mahany, each different data rate corresponds to a different fragment size. Mahany does not teach or even suggest a situation where two frame sizes are the same, while the two corresponding data rates are different.

The Applicant submits that this provides additional reasons for the allowability of claims 18 and 29 over the cited references.

New Claims 19 and 30

According to new claims 17 and 28, at least one of (i) the second data rate is different from the first data rate and (ii) the second frame size is different from the first frame size. According to new claims 19 and 30, which depend from claims 17 and 28, respectively, the second frame size is the same as the first frame size. Thus, in new claims 19 and 30, the first and second data rates are the same, while the first and second frame sizes are different.

As described in the previous section, Mahany does not teach or even suggest a situation where two data rates are the same, while the two corresponding frame sizes are different.

The Applicant submits that this provides additional reasons for the allowability of claims 19 and 30 over the cited references.

New Claims 21 and 32

According to new claims 21 and 32, the first data rate and the first frame size are selected from a first table of two or more combinations of data rates and frame sizes corresponding to the first maximum frame transmission time, and the second data rate and the second frame size are selected from a second table of two or more combinations of data rates and frame sizes corresponding to the second maximum frame transmission time, wherein the first table is different from the second table.

Mahany does not teach or even suggest a method that relies on two or more tables, where each table comprises two or more combinations of data rates and frame sizes.

The Applicant submits that this provides additional reasons for the allowability of claims 21 and 32 (and therefore claims 22-23 and 33-34) over the cited references.

New Claims 22 and 33

According to new claims 22 and 33, the first table corresponds to the characterized initial interference, and the second table corresponds to the characterized subsequent interference. The Applicant submits that none of the cited references teaches the use of different tables corresponding to different characterizations of interference in a communication channel. The Applicant submits that this provides additional reasons for the allowability of claims 22 and 33 over the cited references.

New Claims 23 and 34

According to new claims 23 and 34, the first table corresponds to an IEEE 802.11 communication system operating collocated with an operating Bluetooth system, and the second table corresponds to the IEEE 802.11 communication system operating near one or more operating microwave ovens. The Applicant submits that none of the cited references teaches the use of different tables corresponding to IEEE 802.11 communications systems operating in these different environments. The Applicant submits that this provides additional reasons for the allowability of claims 23 and 34 over the cited references.

Claims 26 and 37

According to new claims 24 and 35, a third data rate and a third frame size are selected for a third packet based on the second maximum frame transmission time, wherein the third data rate is different from the second data rate. The third packet is fragmented into one or more frames based on the third frame size, and the one or more frames of the third packet are transmitted at the third data rate, such that the transmission duration of each frame of the third packet is less than the second maximum frame transmission time.

According to claims 25 and 36, which depend from claims 24 and 35, respectively, the third data rate and the third frame size are selected, the third packet is fragmented, and the one or more frames of the third packet are transmitted after determining that transmission of the one or more frames of the second packet at the second data rate was not successful, where the third data rate is lower than the second data rate.

According to claims 26 and 37, which depend from claims 25 and 36, respectively, the third frame size is the same as the second frame size.

Thus, in claims 26 and 37, the second and third data rates are different, but the second and third frame sizes are the same, even though the same (i.e., second) maximum frame transmission time is used.

For the same reasons given previously for claims 18 and 29, the Applicant submits that this provide additional reasons for the allowability of claims 26 and 37 over the cited references.

New Claim 38

New claim 38 is directed to 38 a transmitter for communicating packets of data with predetermined packet sizes over a communication channel to a receiver. The transmitter comprises a memory and a processor. The memory is adapted to store a plurality of different tables, each table comprising two or more combinations of data rates and frame sizes and each table corresponding to a different maximum frame transmission time. The processor adapted to (a) characterize interference in the communication channel, (b) select a first table of the plurality of tables based on the characterized

interference; (c) select, from the first table, a first combination of a first data rate and a first frame size for a first packet; and (d) fragment the first packet into one or more frames based on the first frame size, wherein the transmitter is adapted to transmit the one or more frames of the first packet at the first data rate, such that transmission duration of each frame of the first packet is less than the maximum frame transmission time corresponding to the first table.

For the same reasons given previously for claims 21 and 32, the Applicant submits that new claim 38 is allowable over the cited references. Since claims 39-44 depend variously from claim 38, it is further submitted that those claims are also allowable over the cited references.

New Claim 39

According to new claim 39, the first table further comprises a second combination of a second data rate and a second frame size, where the first data rate is different from the second data rate, and the first frame size is the same as the second frame size.

For the same reasons given previously for claims 18 and 29, the Applicant submits that this provide additional reasons for the allowability of claim 39 over the cited references.

New Claim 42

According to new claim 40, the processor is further adapted to (e) select, from the first table, a second combination of a second data rate and a second frame size for a second packet, and (f) fragment the second packet into one or more frames based on the second frame size, wherein the transmitter is adapted to transmit the one or more frames of the second packet at the second data rate, such that the transmission duration of each frame of the second packet is less than the maximum frame transmission time corresponding to the first table.

According to new claim 41, which depends from claim 40, the processor is adapted to implement the selection of (e) and the fragmentation of (f) after determining that transmission of the one or more frames of the first packet at the first data rate was not successful, where the second data rate is lower than the first data rate.

According to new claim 42, which depends from claim 41, the second frame size is the same as the first frame size.

Thus, in claim 42, the second and third data rates are different, but the second and third frame sizes are the same, even though the same maximum frame transmission time is used.

For the same reasons given previously for claims 18 and 29, the Applicant submits that this provide additional reasons for the allowability of claim 42 over the cited references.

New Claim 43

According to new claim 43, the processor is further adapted to (e) re-characterize the interference in the communication channel; (f) select a second table of the plurality of tables based on the re-characterized interference; (g) select, from the second table, a second combination of a second data rate and a second frame size for a second packet; and (h) fragment the second packet into one or more frames based on the second frame size, wherein the transmitter is adapted to transmit the one or more frames of the second packet at the second data rate, such that the transmission duration of each frame of the second

packet is less than the maximum frame transmission time corresponding to the second table; and the maximum transmission time corresponding to the second table is different from the maximum transmission time corresponding to the first table.

For the same reasons given previously for claims 16 and 27, the Applicant submits that this provide additional reasons for the allowability of claim 43 over the cited references.

New Claim 44

According to new claim 44, the first table corresponds to an IEEE 802.11 communication system operating collocated with an operating Bluetooth system, and the second table corresponds to the IEEE 802.11 communication system operating near one or more operating microwave ovens.


For the same reasons given previously for claims 23 and 34, the Applicant submits that this provide additional reasons for the allowability of claim 44 over the cited references.

In view of the foregoing, the Applicant submits that the rejections of claims under Sections 102(b) and 103(a) have been overcome.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

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